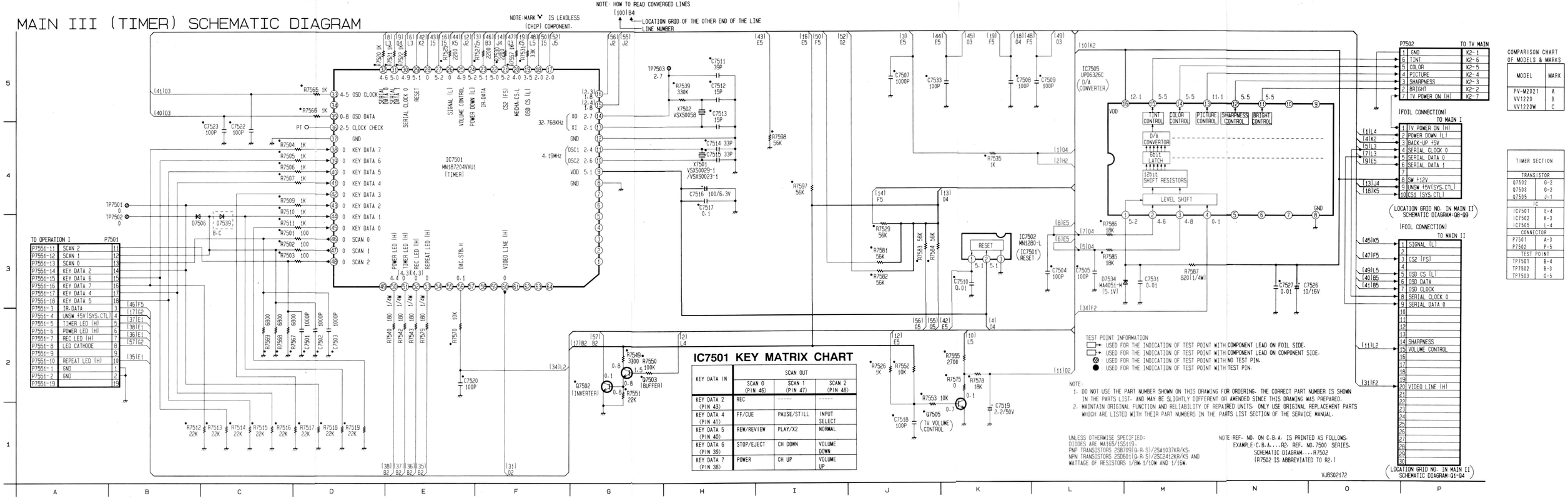
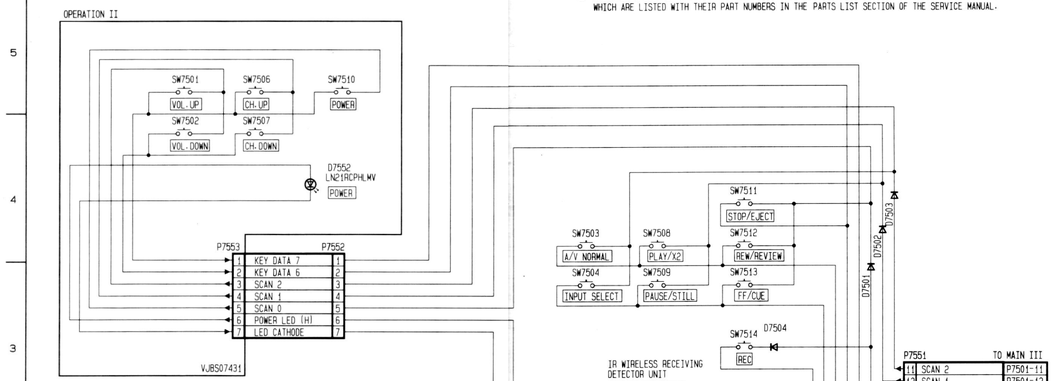
MAIN III (TIMER) SCHEMATIC DIAGRAM



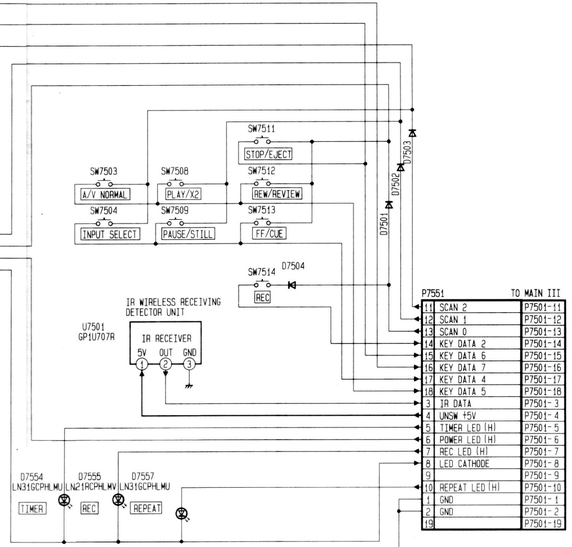
OPERATION I/II SCHEMATIC DIAGRAM

NOTE:
1. DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.
2. MAINTAIN ORIGINAL FUNCTION AND RELIABILITY OF REPAIRED UNITS. ONLY USE ORIGINAL REPLACEMENT PARTS WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THE SERVICE MANUAL.



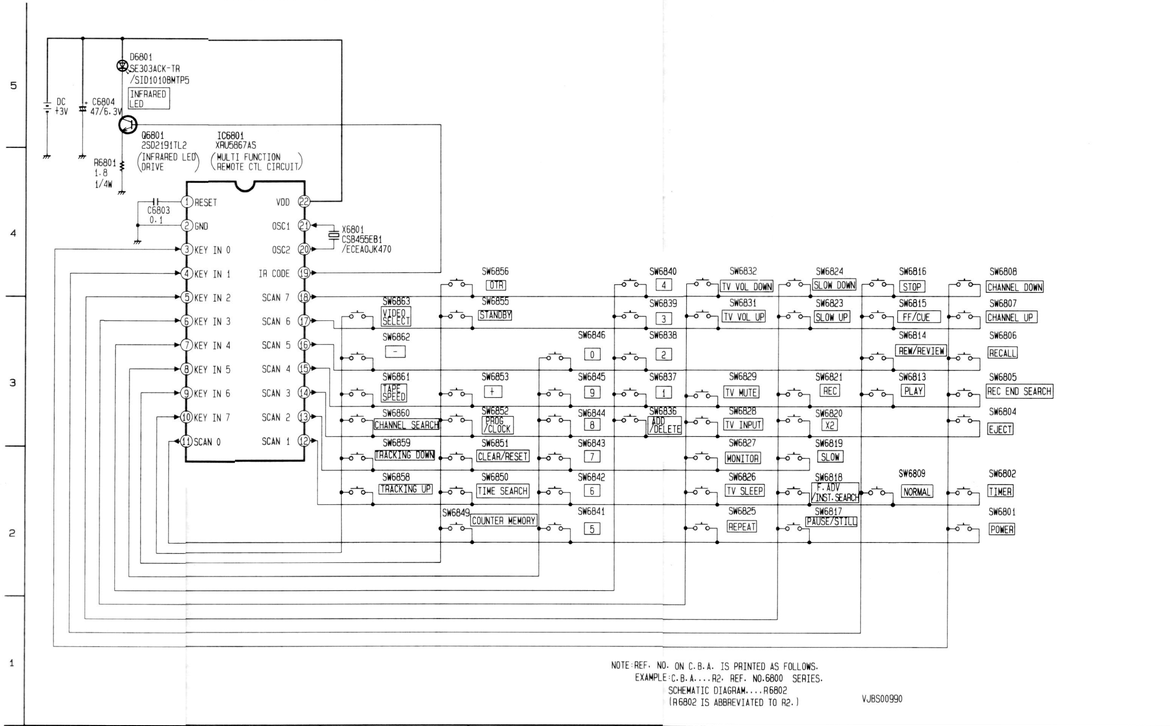
NOTE:REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE C.B.A....R2.REF. NO. 7500 SERIES)
SCHEMATIC DIAGRAM....R7502
(R7502 IS ABBREVIATED TO R2.)

UNLESS OTHERWISE SPECIFIED:
SWITCHES ARE EVQQSR05K.
DIODES ARE MA165/1SS119.



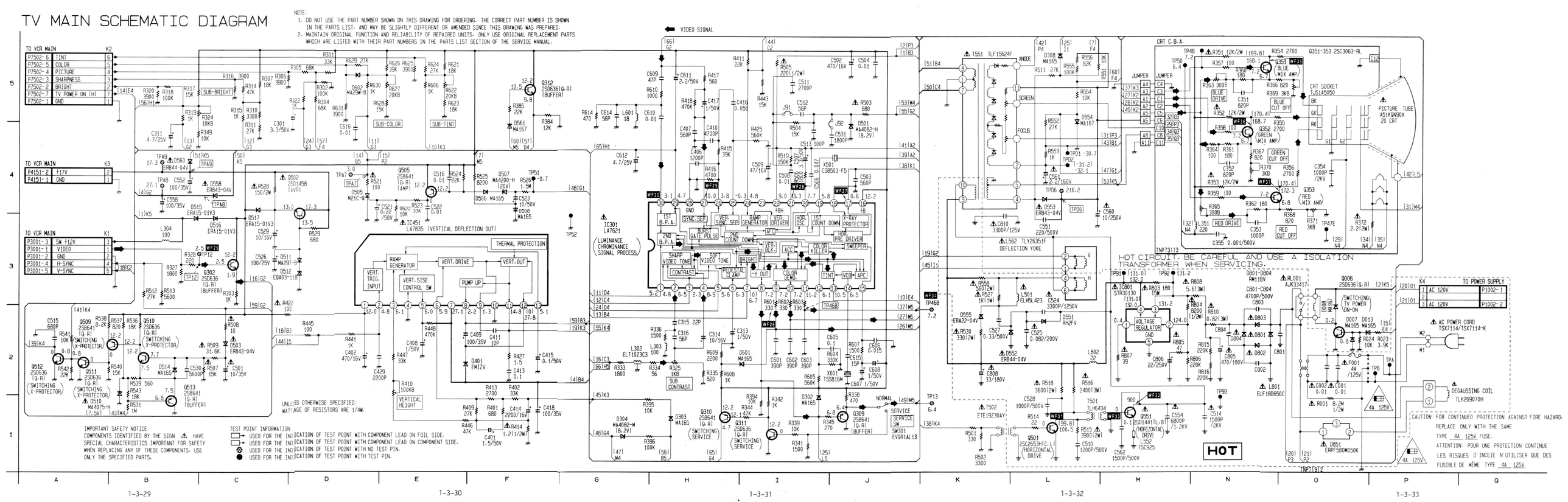
VJBS07430

IR WIRELESS TRANSMITTER SCHEMATIC DIAGRAM



TV MAIN SCHEMATIC DIAGRAM

NOTE :
1. DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST. AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.
2. MAINTAIN ORIGINAL FUNCTION AND RELIABILITY OF REPAIRED UNITS. ONLY USE ORIGINAL REPLACEMENT PARTS WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THE SERVICE MANUAL.



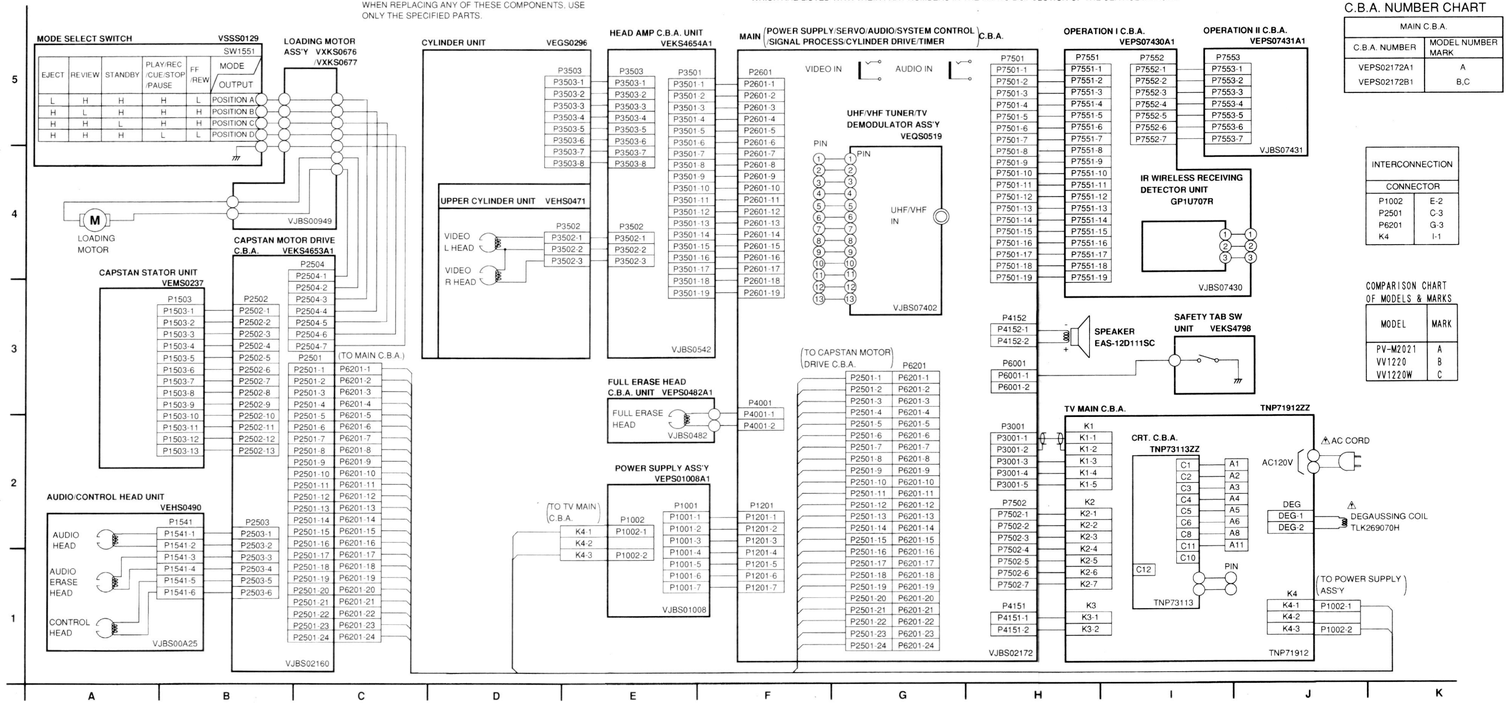
TV MAIN	
TRANSISTOR	
Q006	O-3
Q302	C-3
Q309	J-1
Q310	H-1
Q311	I-1
Q312	F-5
Q501	L-1
Q502	D-4
Q505	E-4
Q509	A-2
Q510	B-2
Q511	A-2
Q512	A-2
Q513	B-2
Q551	M-1
IC	
IC301	G-3
IC451	E-3
IC801	M-3
CONNECTOR	
K1	A-3
K2	A-5
K3	A-4
K4	P-3
JUMPER	M-5
TEST POINT	
TP12	C-3
TP13	K-1
TP46B	K-2
TP51	F-4
TP52	G-3
TP91	M-3
TP92	M-3
TP93	N-2
TPA7	D-4
TPA8	B-4
TPA9	B-4
TPD1	L-4
TPD2	L-4
TPD6	L-4
TPA	P-2
TPB	P-2
ADJUSTMENT	
R310	C-5
R324	C-5
R325	H-2
R410	E-2
R622	E-5
R627	E-5

CRT	
TRANSISTOR	
Q351	N-5
Q352	N-4
Q353	O-4
CONNECTOR	
JUMPER	M-5
TEST POINT	
TP47E	O-3
TP48	N-5
TP50	M-5
ADJUSTMENT	
R363	N-5
R365	N-4
R369	N-5
R370	N-4
R371	O-3

INTERCONNECTION SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
1. DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PART LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.
2. MAINTAIN ORIGINAL FUNCTION AND RELIABILITY OF REPAIRED UNITS, ONLY USE ORIGINAL REPLACEMENT PARTS WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THE SERVICE MANUAL.



C.B.A. NUMBER CHART

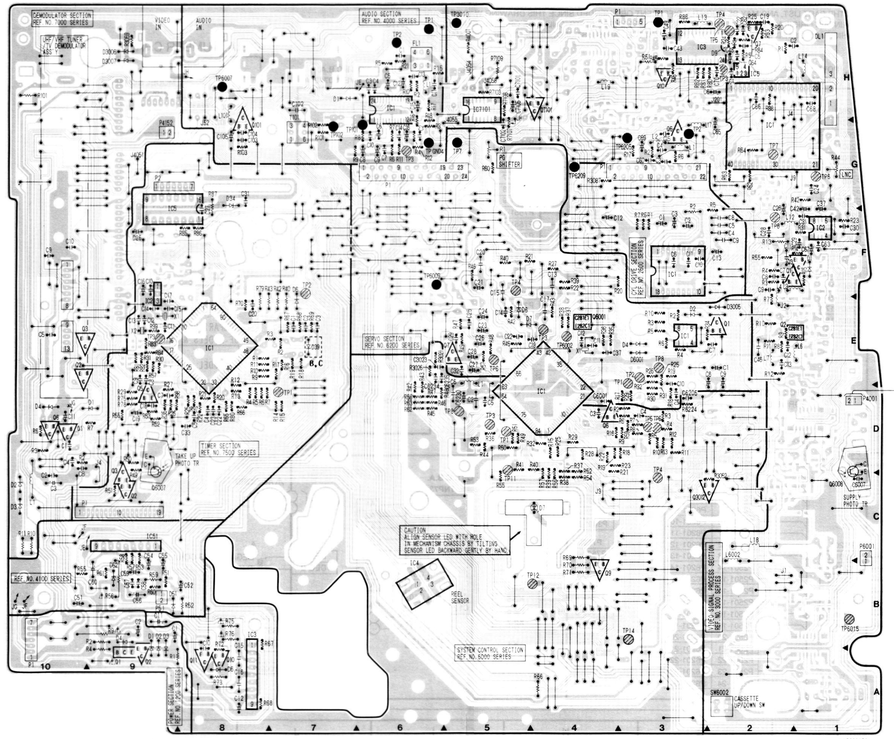
MAIN C.B.A.	
C.B.A. NUMBER	MODEL NUMBER MARK
VEPS02172A1	A
VEPS02172B1	B,C

INTERCONNECTION	
CONNECTOR	
P1002	E-2
P2501	C-3
P6201	G-3
K4	I-1

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-M2021	A
VV1220	B
VV1220W	C

MAIN(POWER SUPPLY/SERVO/SYSTEM CONTROL/AUDIO/SIGNAL PROCESS/CYLINDER DRIVE/TIMER) C.B.A. VEPS02172A1(A)/VEPS02172B1(B)



IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

TEST POINT INFORMATION
- USED FOR THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON FOIL SIDE.
- USED FOT THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON COMPONENT SIDE.
- USED FOR THE INDICATION OF TEST POINT WITH NO TEST PIN.
- USED FOR THE INDICATION OF TEST POINT WITH TEST PIN.

POWER SUPPLY SECTION

TRANSISTOR	
Q1	A-9
Q2	A-9
CONNECTOR	
P1	A-10

CYLINDER DRIVE SECTION

IC	
IC1	F-3
CONNECTOR	
P1	G-4

VIDEO SIGNAL PROCESS SECTION

TRANSISTOR	
Q1	F-2
Q2	E-2
Q3	F-2
Q6	G-3
Q7	H-2
Q10	H-3
Q12	C-3
IC	
IC1	G-2
IC2	F-1
IC3	H-3
IC5	H-2
CONNECTOR	
P1	H-4
TEST POINT	
TP1	H-3
TP2	G-3
TP3	H-2
TP4	H-2
TP5	H-2
TP6	G-1
TP7	G-2
TP8	F-2
TP10	H-5
ADJUSTMENT	
R44	G-1

AUDIO SECTION

TRANSISTOR	
Q101	G-8
IC	
IC1	H-8
IC151	C-9
CONNECTOR	
P1	D-1
P151	G-9
P152	B-9
TEST POINT	
TP1	H-6
TP2	H-6
TP3	G-6
TP101	G-7
TP102	G-7
TPGND4	G-6

SYSTEM CONTROL SECTION

TRANSISTOR	
Q1	E-4
Q6	D-4
Q7	C-9
Q8	C-1
Q9	B-4
Q3	A-8
Q11	A-8
IC	
IC1	D-4
IC3	B-8
IC4	B-5
CONNECTOR	
P1	C-1
TEST POINT	
TP1	D-5
TP2	E-4
TP3	D-5
TP4	D-3
TP5	D-3
TP6	D-3
TP7	H-8
TP8	D-5
TP9	F-6
TP11	C-5
TP12	B-4
TP14	B-3
TP15	B-1

SERVO SECTION

TRANSISTOR	
Q1	E-2
Q7	E-5
IC	
IC1	E-3
CONNECTOR	
P1	G-6
TEST POINT	
TP1	E-4
TP2	G-3
TP3	E-4
TP4	F-5
TP5	G-3
TP6	E-5
TP7	G-5
TP8	E-3
TP9	G-4
ADJUSTMENT	
R1	G-5

DEMODULATOR SECTION

TRANSISTOR	
Q1	D-10
Q2	E-10
Q3	E-10
Q6	D-10
Q101	H-4
IC	
IC101	H-5

TIMER SECTION

TRANSISTOR	
Q2	C-9
Q3	C-9
Q5	D-9
IC	
IC1	E-8
IC2	E-9
IC5	F-9
CONNECTOR	
P1	C-10
P2	G-9
TEST POINT	
TP1	D-7
TP2	F-7
TP3	E-9

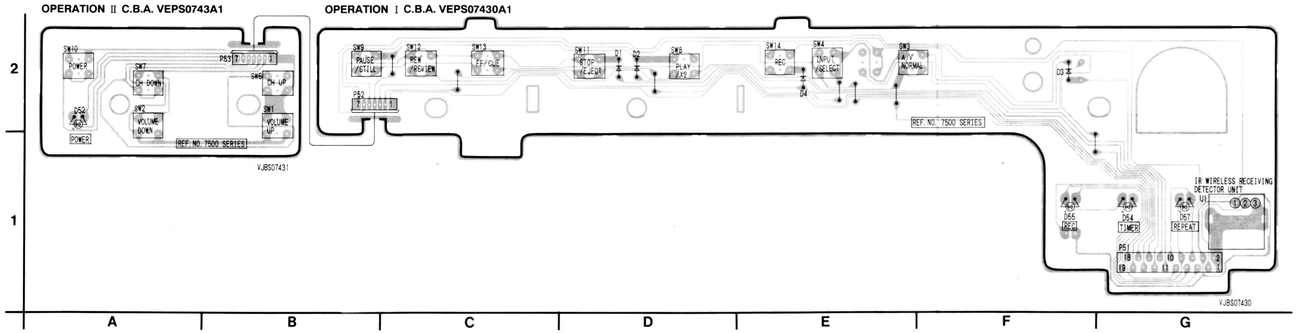
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-M2021	A
VV1220	B
VV1220W	C

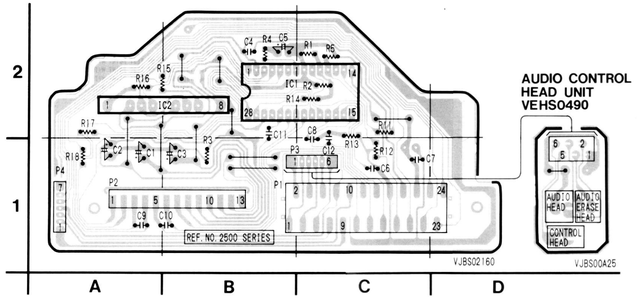
LEADLESS COMPONENT PARTS LOCATION GUIDE
MAIN C.B.A.

Q1202	A-9	R3062	G-2	R6025	D-4	R6238	E-4	R7568	E-7	C4158	B-9
Q3001	F-2	R3063	G-2	R6028	D-4	R6239	F-4	R7569	E-7	C6001	D-4
Q3002	F-2	R3064	G-2	R6029	D-4	R6240	F-5	R7570	E-8	C6003	D-4
Q3003	F-2	R3080	H-2	R6032	D-4	R6242	E-5	R7578	D-9	C6004	D-3
Q3006	G-3	R3081	H-3	R6036	D-5	R6243	E-4	R7575	D-9	C6005	D-5
Q3007	H-2	R3082	H-3	R6037	D-4	R6245	E-5	R7581	E-9	C6007	C-1
Q3010	H-3	R3083	H-2	R6038	C-4	R6246	F-5	R7582	E-9	C6010	B-8
Q3012	C-3	R3084	H-2	R6039	C-4	R6247	E-5	R7583	E-9	C6204	D-3
Q4101	G-8	R3086	H-3	R6040	D-4	R6248	E-5	R7584	E-9	C6205	D-3
Q6001	E-4	R3087	G-4	R6041	D-5	R6249	E-5	R7585	F-8	C6207	E-2
Q6006	D-4	R3088	H-2	R6042	D-6	R6257	E-5	R7586	F-8	C6210	E-3
Q6009	B-4	R4001	H-5	R6043	E-6	R6260	G-5	R7597	D-8	C6211	E-4
Q6010	A-8	R4002	H-6	R6044	D-5	R7002	D-10	R7598	D-9	C6212	E-4
Q6011	A-8	R4003	G-6	R6045	D-6	R7003	D-10	C2606	F-3	C6214	E-5
Q6201	E-2	R4004	G-6	R6046	D-5	R7006	D-10	C2610	F-3	C6218	E-4
Q6207	E-5	R4005	H-6	R6047	D-6	R7103	H-5	C2611	F-3	C6222	E-5
Q7001	D-10	R4006	G-6	R6048	D-5	R7107	G-5	C3001	H-2	C6225	E-5
Q7002	E-10	R4007	G-6	R6049	D-5	R7108	H-5	C3002	H-2	C6229	E-5
Q7003	E-10	R4008	G-6	R6050	D-5	R7501	E-8	C3003	G-3	C6232	E-5
Q7006	D-10	R4009	G-7	R6051	D-5	R7502	E-7	C3004	G-3	C6234	E-6
Q7101	H-4	R4010	H-6	R6052	D-4	R7503	E-7	C3005	H-2	C6235	E-5
Q7502	C-9	R4011	G-6	R6053	D-5	R7504	D-8	C3007	F-2	C6237	E-4
Q7503	D-9	R4012	G-6	R6054	C-4	R7505	D-8	C3008	F-2	C7001	D-10
Q7505	D-9	R4015	H-6	R6055	C-5	R7506	D-8	C3009	F-2	C7002	C-10
D3009	H-2	R4016	H-6	R6056	C-4	R7507	D-8	C3012	E-2	C7004	D-10
R2601	F-3	R4017	H-6	R6057	C-4	R7509	E-8	C3013	E-2	C7005	E-10
R2605	G-2	R4018	H-6	R6058	D-6	R7510	E-8	C3015	G-3	C7008	C-10
R2606	F-3	R4021	H-6	R6059	D-3	R7511	E-8	C3019	H-2	C7009	F-10
R2607	F-3	R4101	G-7	R6062	D-6	R7512	E-8	C3022	H-2	C7010	F-10
R3001	H-2	R4102	G-7	R6063	D-6	R7513	D-8	C3023	E-6	C7101	H-5
R3002	G-3	R4103	G-8	R6067	B-8	R7514	D-7	C3024	G-1	C7102	G-5
R3003	F-2	R4151	B-9	R6268	A-8	R7515	D-7	C3028	F-2	C7501	E-7
R3004	F-2	R4153	B-9	R6072	B-8	R7516	E-7	C3029	F-2	C7502	E-7
R3005	H-2	R4155	B-10	R6202	E-3	R7517	E-7	C3030	F-1	C7503	E-7
R3006	G-3	R4157	B-9	R6203	E-3	R7518	E-7	C3031	F-1	C7504	D-8
R3007	E-2	R4158	C-9	R6204	E-3	R7519	E-7	C3043	H-3	C7505	D-8
R3008	E-2	R4160	B-9	R6205	E-3	R7520	D-8	C3049	H-3	C7507	D-9
R3009	E-2	R4161	B-9	R6206	E-3	R7521	D-8	C3060	G-3	C7508	E-8
R3010	E-2	R6002	D-4	R6210	E-3	R7522	D-8	C3062	H-2	C7509	E-9
R3011	E-2	R6003	D-3	R6217	D-4	R7525	D-8	C3063	F-1	C7510	F-10
R3012	E-2	R6004	D-3	R6218	D-3	R7526	D-8	C3064	H-2	C7511	E-9
R3014	F-1	R6005	D-3	R6219	E-3	R7527	E-9	C3065	H-2	C7512	E-9
R3015	F-1	R6006	D-3	R6220	F-4	R7529	D-9	C3068	H-1	C7513	E-9
R3017	G-3	R6007	D-3	R6221	F-5	R7530	E-9	C3070	H-2	C7514	E-9
R3020	H-2	R6008	D-3	R6222	F-4	R7531	E-9	C4001	H-6	C7515	E-9
R3021	E-6	R6009	D-3	R6224	D-3	R7535	D-9	C4002	G-6	C7517	E-9
R3023	F-1	R6010	D-3	R6225	E-3	R7539	E-9	C4003	H-6	C7518	D-9
R3024	H-2	R6011	D-3	R6226	E-3	R7549	C-9	C4004	H-6	C7520	E-8
R3025	H-2	R6012	D-3	R6227	F-4	R7550	D-9	C4006	G-6	C7522	D-8
R3026	E-6	R6013	D-3	R6229	D-3	R7551	C-9	C4007	G-6	C7523	D-8
R3031	F-1	R6015	D-4	R6230	D-3	R7552	D-9	C4010	G-6	C7527	F-8
R3042	G-1	R6016	D-4	R6231	D-3	R7553	D-9	C4011	H-6	C7531	G-8
R3045	H-3	R6018	D-3	R6232	D-3	R7555	D-9	C4013	H-6	C7533	D-8
R3046	H-3	R6019	D-4	R6234	E-3	R7557	E-9	C4014	G-6		
R3052	C-2	R6021	C-3	R6235	E-4	R7565	D-8	C4103	G-8		
R3055	F-2	R6022	D-4	R6236	E-4	R7566	D-8	C4104	G-8		
R3059	H-9	R6023	D-3	R6237	E-4	R7567	E-7	C4157	B-9		

OPERATION Ⅰ / Ⅱ C.B.A.



CAPSTAN MOTOR DRIVE C.B.A. VEKS4653A1

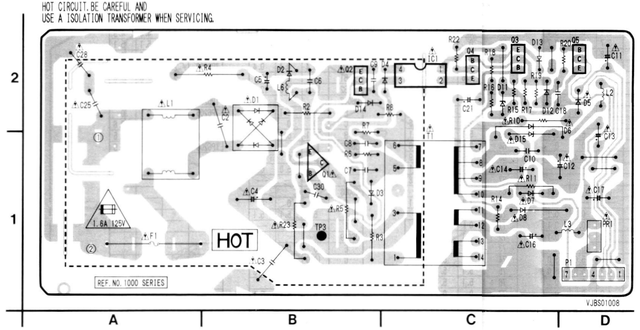


LEADLESS COMPONENT PARTS LOCATION GUIDE
CAPSTAN MOTOR DRIVE ASS'Y

R2501	C-2	R2513	C-1	C2506	C-1
R2502	C-2	R2514	B-2	C2507	C-1
R2503	B-1	R2515	A-2	C2508	C-2
R2504	B-2	R2516	A-2	C2509	A-1
R2505	C-2	R2517	A-2	C2510	B-1
R2511	C-2	R2518	A-1	C2511	B-2
R2512	C-1	C2504	B-2	C2512	C-1

TEST POINT INFORMATION
□→: USED FOR THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON FOIL SIDE.
□→: USED FOR THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON COMPONENT SIDE.
◎: USED FOR THE INDICATION OF TEST POINT WITH NO TEST PIN.
●: USED FOR THE INDICATION OF TEST POINT WITH TEST PIN.

POWER SUPPLY ASS'Y VEPS01008A1

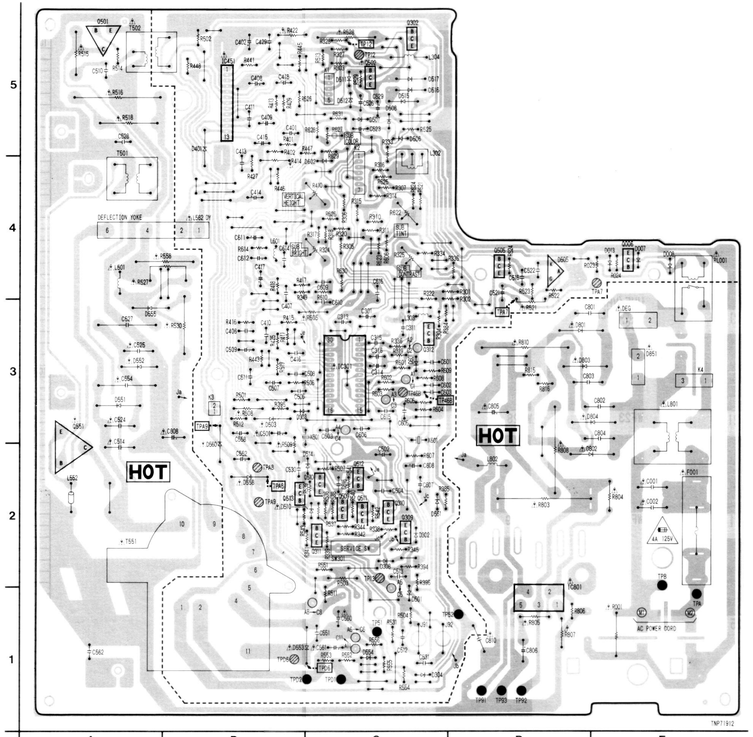


POWER SUPPLY	
TRANSISTOR	
Q1	B-1
Q2	B-2
Q3	C-2
Q4	C-2
Q5	D-2
IC	
IC1	C-2
CONNECTOR	
P1	D-1
TEST POINT	
TP3	B-1

TEST POINT INFORMATION
: USED FOR THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON FOIL SIDE.
: USED FOT THE INDICATION OF TEST POINT WITH COMPONENT LEAD ON COMPONENT SIDE.
: USED FOR THE INDICATION OF TEST POINT WITH NO TEST P.IN.
: USED FOR THE INDICATION OF TEST POINT WITH TEST P.IN.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE
ONLY THE SPECIFIED PARTS.

TV MAIN C.B.A. TNP71912ZZ

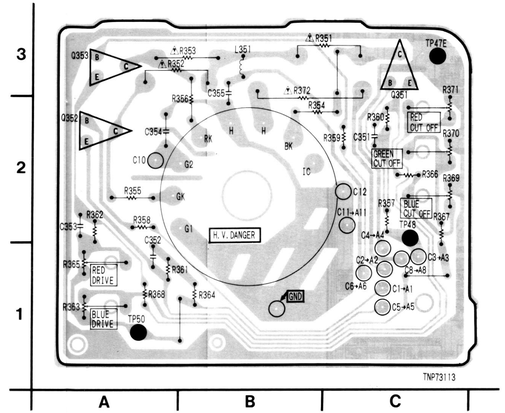


TV MAIN	
TRANSISTOR	
Q086	E-4
Q302	C-5
Q309	C-2
Q310	C-2
Q311	C-2
Q312	C-3
Q501	A-5
Q502	C-5
Q505	D-4
Q509	C-2
Q510	C-2
Q511	C-2
Q512	C-2
Q513	B-2
Q551	A-3
IC	
IC301	C-3
IC451	B-5
IC801	D-1
CONNECTOR	
K1	C-5
K2	C-5
K3	B-3
K4	E-3
M1	E-1
M2	E-1
DEG	E-3
A1	C-3
A2	C-3
A3	C-3
A4	C-3
A5	C-2
A6	C-1
A8	C-1
A11	C-1

TV MAIN	
TEST POINT	
TP12	C-5
※TP12	C-5
TP13	C-2
TP46B	C-3
※TP46B	C-3
TP51	C-1
TP52	D-1
TP91	D-1
TP92	D-1
TP93	D-1
TPA7	E-4
※TPA7	D-3
TPA8	B-2
※TPA8	B-2
TPA9	B-2
※TPA9	B-3
TPD1	C-1
TPD2	B-1
TPD6	B-1
※TPD6	C-1
TPA	E-1
TPB	E-2
ADJUSTMENT	
R310	C-4
R324	C-4
R325	C-4
R410	C-4
R622	C-4
R627	C-5

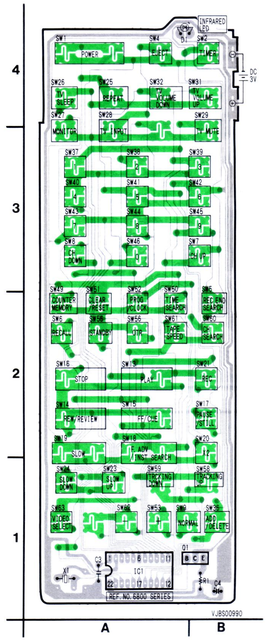
※COMPONENT SIDE

CRT C.B.A. TNP73113ZZ



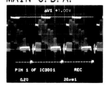
CRT	
TRANSISTOR	
Q351	C-3
Q352	A-2
Q353	A-3
CONNECTOR	
C1	C-1
C2	C-1
C3	C-1
C4	C-2
C5	C-1
C6	C-1
C8	C-1
C10	A-2
C11	C-2
C12	C-2
TEST POINT	
TP47E	C-3
TP48	C-2
TP50	A-1
GND	B-1
ADJUSTMENT	
R363	A-1
R365	A-1
R369	C-2
R370	C-2
R371	C-2

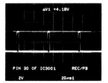
IR WIRELESS TRANSMITTER UNIT
54 FUNCTION

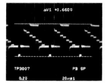


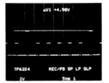
WAVEFORM PHOTO GRAPH

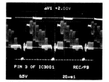
MAIN C. B. A.


WF1


WF8


WF14


WF19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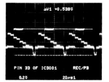
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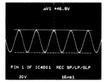
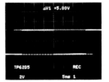
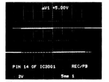
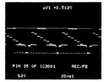
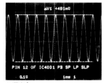
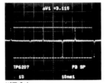

WF15

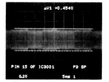

WF20

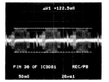

WF3

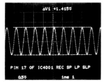

WF10


WF16

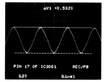

WF21

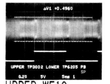

WF4

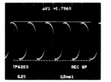

WF11

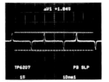

WF17

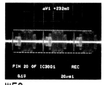
WF21


WF5

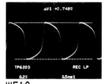

UPPER WF12
LOWER WF20


WF18

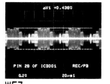

WF21

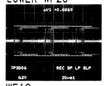

WF6

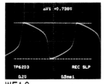
UPPER WF12
LOWER WF20


WF18

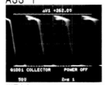
WF25

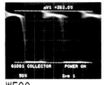

WF7


WF13


WF18

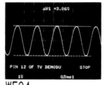
POWER SUPPLY ASS'Y


WF22

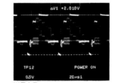

WF22

UHF/VHF TUNER/TV DEMODULATOR ASS'Y

WF23


WF24

TV MAIN C. B. A.

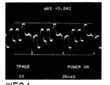

WF25

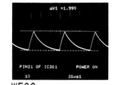
WF32

WF26

WF33

WF27


WF34


WF28

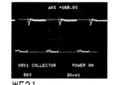
WF35

WF29

WF36

WF30

WF37


WF31

VOLTAGE CHART (SERVO/SYSTEM CONTROL SECTION)

MODE / PIN NO.	STOP	FF	REW
IC2501			
1	2.7	3.9	3.9
2	14.3	14.3	14.3
3	13.8	13.8	13.8
4	14.4	13.8	13.8
5	14.4	13.8	13.8
6	---	---	---
7	0.7	0.7	0.7
8	0	0	0
9	0.2	0.7	0.7
10	0.2	0.2	0.2
11	0.6	0.6	0.6
12	---	---	---
13	3.1	3.1	3.1
14	5.1	5.1	5.1
15	1.1	2.5	2.5
16	2.7	2.7	2.7
17	2.6	0.1	0.1
18	1.7	1.7	1.7
19	1.6	1.6	1.6
20	1.6	1.6	1.6
21	1.6	1.6	1.6
22	1.6	1.6	1.6
23	1.6	1.6	1.6
24	1.6	1.6	1.6
25	---	---	---
26	2.7	4.9	4.9
27	0	0.2	0.2
28	2.7	4.9	4.9
IC2502			
1	14.4	13.9	13.9
2	2.7	3.7	3.7
3	14.5	14.2	14.2
4	14.4	13.8	13.8
5	2.7	3.7	3.7
6	14.5	14.2	14.2
7	14.5	13.8	13.8
8	2.7	3.8	3.8

MODE / PIN NO.	STOP	FF	REW
IC2601			
1	13.9	13.9	13.9
2	13.9	13.9	13.9
3	0.1	0.1	0.1
4	0.6	0.6	0.6
5	0	0	0
6	2.6	2.6	2.6
7	2.5	2.5	2.5
8	1.3	1.3	1.3
9	0.9	0.9	0.9
10	2.7	2.7	2.7
11	5.1	5.1	5.1
12	3.7	3.7	3.7
13	3.8	3.8	3.8
14	3.8	3.8	3.8
15	1.2	1.2	1.2
16	14.1	14.1	14.1
17	14.2	14.2	14.2
18	0.1	0.1	0.1
IC6001			
1	5.1	5.1	5.1
2	0	0	0
3	1.4	1.4	1.4
4	---	---	---
5	---	---	---
6	0.3	0.3	0.3
7	---	---	---
8	0.1	0.1	0.1
9	0.1	0.1	0.1
10	0.1	0.1	0.1
11	0.1	0.1	0.1
12	5.0	5.0	5.0
13	0.2	5.0	5.0
14	0	0	0
15	4.9	0	0
16	0.1	0.1	0.1
17	4.7	4.7	4.7
18	1.9	1.9	1.9
19	5.0	5.0	5.0
20	5.1	5.1	5.1
21	0	0	0
22	2.6	2.6	2.6
23	0.1	0.1	0.1
24	2.6	2.6	2.6
25	0.1	2.6	2.6
26	2.4	2.4	2.4
27	2.6	2.6	2.6
28	---	---	---
29	---	---	---
30	---	---	---
31	1.1	1.1	1.1
32	2.1	2.1	2.1
33	0	0	0
34	0	0	0
35	---	---	---
36	0.1	0.1	0.1
37	0.1	5.1	5.1
38	2.1	2.1	2.1
39	1.1	2.5	2.5
40	2.6	0.1	4.9
41	5.0	5.0	5.0
42	0	0	0

MODE / PIN NO.	STOP	FF	REW
43	2.9	2.9	2.9
44	2.6	2.6	2.6
45	2.6	2.6	2.6
46	2.6	2.6	2.6
47	1.2	1.2	1.2
48	0	0	0
49	0	0	0
50	2.6	2.6	2.6
51	2.6	2.6	2.6
52	2.3	3.1	3.1
53	2.8	2.5	2.5
54	5.1	5.1	5.1
55	0	0	0
56	0	0	0
57	0	0	0
58	2.6	2.6	2.6
59	2.6	2.6	2.6
60	0	0	0
61	2.8	3.2	3.2
62	2.6	2.6	2.6
63	5.1	5.1	5.1
64	2.6	2.6	2.6
65	3.9	3.9	3.9
66	5.1	5.1	5.1
67	4.8	4.8	4.8
68	---	---	---
69	1.1	0.1	0.1
70	0	0	0
71	0	0	0
72	5.1	5.1	5.1
73	5.1	5.1	5.1
74	5.1	5.1	5.1
75	5.1	5.1	5.1
76	5.1	5.1	5.1
77	0	0	0
78	5.1	0.1	0.1
79	5.1	5.1	5.1
80	5.1	5.1	5.1
81	0.1	0.1	0.1
82	---	---	---
83	---	---	---
84	0	0	0
IC6003			
1	0.1	0.1	0.1
2	14.3	14.3	14.3
3	1.4	1.4	1.4
4	---	---	---
5	0	0	0
6	14.3	14.3	14.3
7	1.9	1.9	1.9
8	14.3	14.3	14.3
9	0.1	0.1	0.1
IC6004			
1	1.3	1.3	1.3
2	0	0	0
3	0	0	0
4	---	---	---

MODE / PIN NO.	STOP	FF	REW
IC6201			
1	2.5	2.5	2.5
2	2.5	2.5	2.5
3	2.5	2.5	2.5
4	0	0	0
5	1.2	2.6	2.6
6	1.2	2.6	2.6
7	1.1	2.5	2.5
8	5.1	5.1	5.1
Q6001			
E1	0	0	0
E2	12.0	12.0	12.0
C1	12.0	12.0	12.0
C2	0.4	0.4	0.4
B1	0	0	0
B2	12.0	12.0	12.0
Q6006			
E	5.1	5.1	5.1
C	0	0	0
B	5.1	5.1	5.1
Q6007			
E	0	0	0
C	5.0	5.0	5.0
B	---	---	---
Q6008			
E	0	0	0
C	5.1	5.1	5.1
B	---	---	---
Q6009			
E	0	0	0
C	10.0	6.3	6.3
B	0.3	0.3	0.3
Q6010			
E	5.1	5.1	5.1
C	5.1	5.1	5.1
B	4.3	4.3	4.3
Q6011			
E	0	0	0
C	0.1	0.1	0.1
B	5.1	5.1	5.1
Q6201			
E	1.1	2.5	2.5
C	1.1	2.6	2.6
B	0.5	5.1	5.1
Q6207			
E	0	0	0
C	0	0	0
B	0.8	0.1	0.1

MODE / PIN NO.	STOP	FF	REW
TP6001	5.1	5.1	5.1
TP6002	2.1	2.1	2.1
TP6003	1.1	0.1	0.1
TP6004	5.0	5.0	5.0
TP6005	1.9	1.9	1.9
TP6006	4.7	4.7	4.7
TP6007	3.9	3.9	3.9
TP6008	0	0	0
TP6009	5.1	5.1	5.1
TP6011	0	0	0
TP6012	5.1	5.1	5.1
TP6014	4.9	4.9	4.9
TP6015	5.1	5.1	5.1
TP6201	2.6	2.6	2.6
TP6202	2.4	2.4	2.4
TP6203	2.6	2.6	2.6
TP6204	1.2	1.2	1.2
TP6205	2.5	2.5	2.5
TP6206	0	0	0
TP6207	2.6	2.6	2.6
TP6208	2.5	2.5	2.5
TP6209	1.1	2.5	2.5

EXPLODED VIEWS

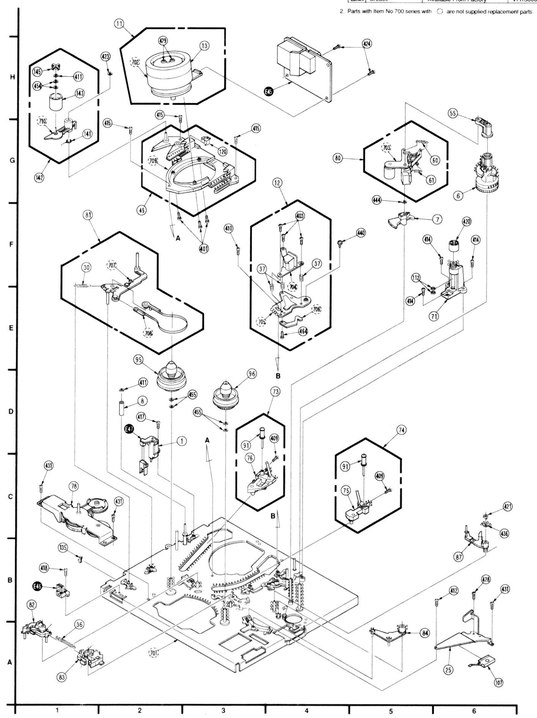
❶ Transport Section

Note: 1. LUBRICATION POINTS

When the marked parts are replaced, apply the recommended Lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
X X X	Molybdene Grease	Available From Factory	MOR265
OOO	Spindle Oil	Purchase From Local Supplier	
ΔΔΔ	Grease	Available From Factory	VFKS0081

2. Parts with Item No 700 series with ○ are not supplied replacement parts



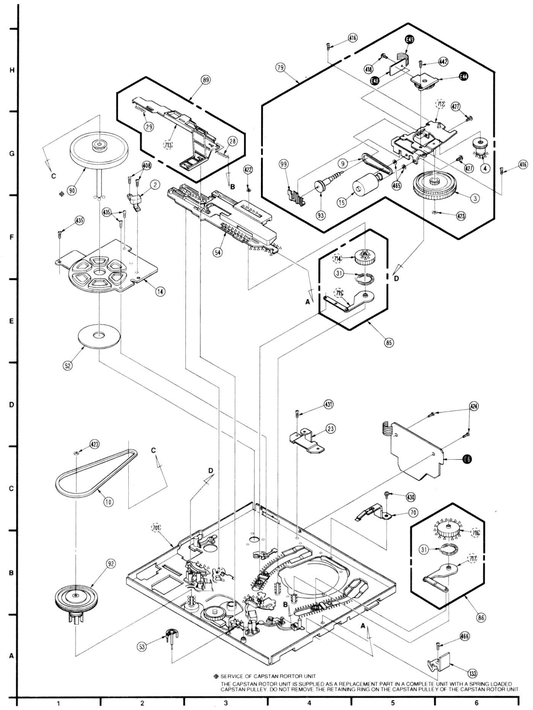
1-4-1

❷ Moving Mechanism Section

LUBRICATION POINTS

When the marked parts are replaced apply the recommended Lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
X X X	Molybdene Grease	Available From Factory	MOR265
OOO	Spindle Oil	Purchase From Local Supplier	
ΔΔΔ	Grease	Available From Factory	VFKS0081



◆ SERVICE OF CAPSTAN ROTOR UNIT

THE CAPSTAN ROTOR UNIT IS SUPPLIED AS A REPLACEMENT PART IN A COMPLETE UNIT WITH A SPRING LOADED CAPSTAN PULLEY. DO NOT REMOVE THE RETAINING RING ON THE CAPSTAN PULLEY OF THE CAPSTAN ROTOR UNIT.

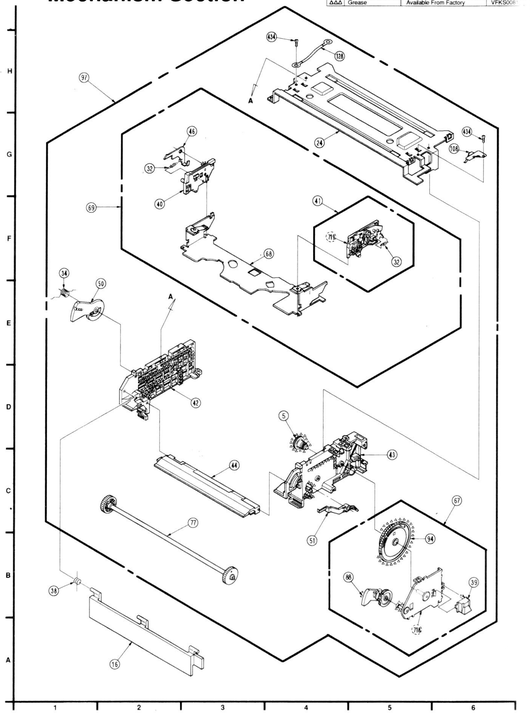
1-4-2

❸ Cassette Up Mechanism Section

LUBRICATION POINTS

When the marked parts are replaced apply the recommended Lubricants or adhesive for better maintenance of the unit.

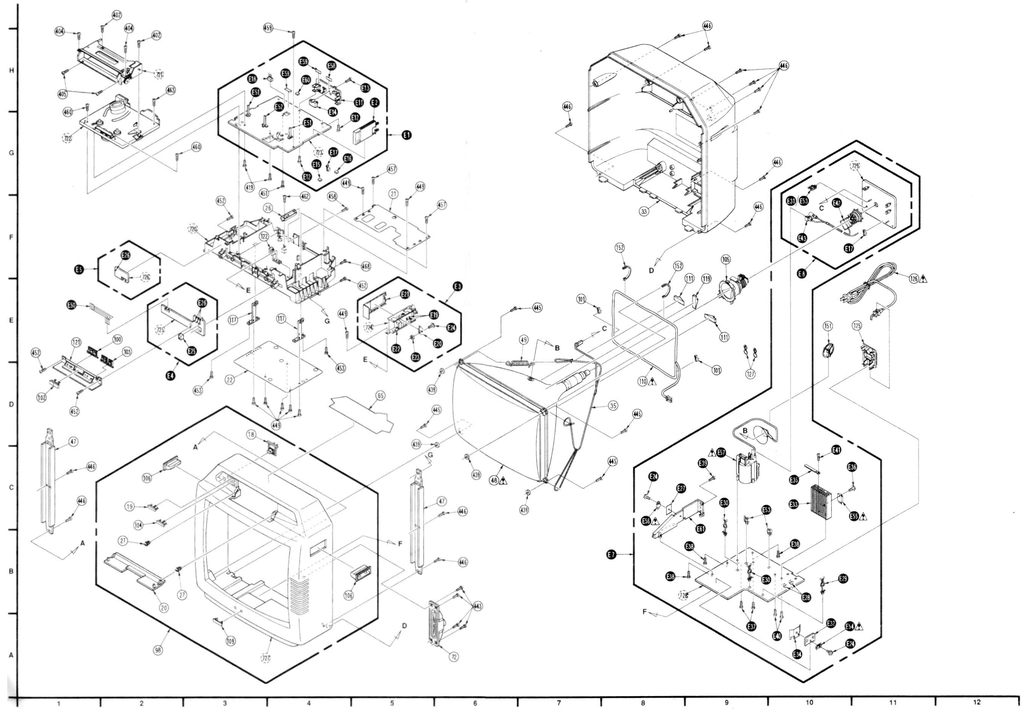
Mark	Kind of Lubricant	Availability	Part Number
X X X	Molybdene Grease	Available From Factory	MOR265
OOO	Spindle Oil	Purchase From Local Supplier	
ΔΔΔ	Grease	Available From Factory	VFKS0081



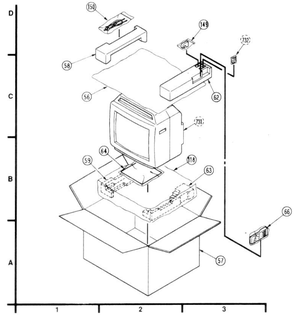
1-4-3

IMPORTANT SAFETY NOTICE:
THERE ARE SPECIAL COMPONENTS USED IN THIS EQUIPMENT WHICH ARE IMPORTANT FOR SAFETY. THESE PARTS ARE MARKED BY ⚠. IN THE SCHEMATIC DIAGRAMS AND REPLACEMENT PARTS LIST. IT IS ESSENTIAL THAT THESE CRITICAL PARTS SHOULD BE REPLACED WITH MANUFACTURER'S SPECIFIED PARTS TO PREVENT X-RADIATION, SHOCK, FIRE, OR OTHER HAZARDS. DO NOT MODIFY THE ORIGINAL DESIGN WITHOUT PERMISSION OF MANUFACTURER.

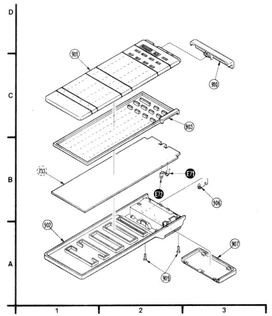
❹ Chassis Frame Section



❺ Packing Parts & Accessories Section



❻ IR Wireless Transmitter Unit Section



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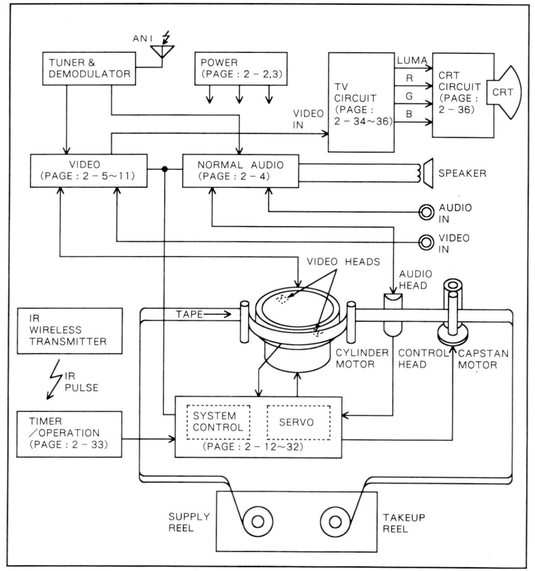
SECTION 2

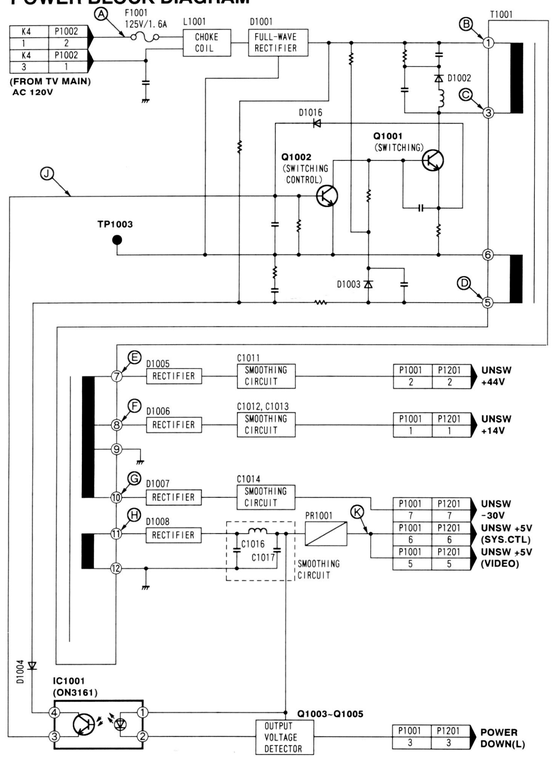
Block Diagrams

MODEL	HEAD
PV – M2021	2

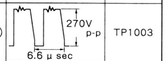
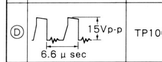
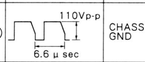
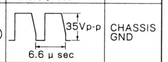
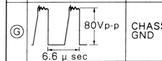
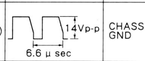
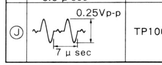
CONTENTS
(OVERALL BLOCK DIAGRAM)



POWER BLOCK DIAGRAM



WAVEFORM OF POWER SUPPLY STAGE

NO	WAVEFORM	NOTE	NO	WAVEFORM	NOTE	NO	WAVEFORM	NOTE
Ⓐ			Ⓑ		TP1003	Ⓒ		TP1003
Ⓓ		TP1003	Ⓔ		CHASSIS GND	Ⓕ		CHASSIS GND
Ⓖ		CHASSIS GND	Ⓗ		CHASSIS GND			
Ⓙ		TP1003						

NOTE : WAVEFORMS MEASURED IN STOP MODE.

POWER SUPPLY CHECKING PROCEDURE

SYMPTOM	FLOW OF TROUBLESHOOT →								
No Power (Secondary circuit)	CHECK POINT	Ⓚ	Ⓔ	Ⓕ	Ⓖ	Ⓗ			
	IF NO.	↓		↓					
	CHANGE	PR1001		＊NOTE1			＊NOTE2		

＊NOTE1 : If voltage is not correct, check primary circuit.
＊NOTE2 : If all voltage is correct, check System Control circuit or Adjust Gear Phase.

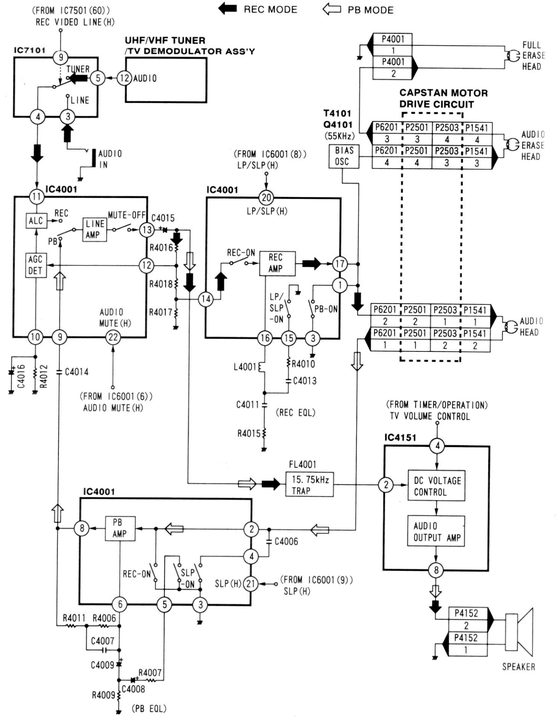
SYMPTOM	FLOW OF TROUBLESHOOT →								
No Power (Primary circuit)	CHECK POINT	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓙ			
	IF NO.	↓		↓					
	CHANGE	＊NOTE1		F1001 Q1001 Q1002 ＊NOTE2					

＊NOTE1 : Check AC Cord.
＊NOTE2 : Change Q1001, Q1002 and F1001 at the same time.

SYMPTOM	FLOW OF TROUBLESHOOT →								
	CHECK POINT								
	IF NO.								
	CHANGE								

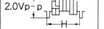
NOTE : PLEASE USE BLANK BRACKETS TO NOTE ADDITIONAL INFORMATION.

AUDIO BLOCK DIAGRAM



WAVEFORM OF VIDEO STAGE

* NOTE : 1.The measurement mode of the waveforms in brackets on this chart is Record and Playback modes with NTSC color bar signal.
2.Please use blank brackets to note additional information.

NO	WAVEFORM	NOTE	NO	WAVEFORM	NOTE	NO	WAVEFORM	NOTE
Ⓐ		REC	Ⓑ		LINE (H) TUNER (L)			
Ⓓ		REC	Ⓔ		REC／P.B	Ⓕ		REC／P.B
Ⓖ		REC	Ⓗ		REC	Ⓘ		
Ⓚ		REC (SP／LP ／SLP)	Ⓛ			Ⓟ		P.B
			Ⓜ			Ⓠ		P.B
			Ⓢ					
ⓐ		REC／P.B	ⓑ		REC／P.B	ⓒ		REC"A"＝ 0.1Vp－p P.B"A"＝ 0.18Vp－p
ⓓ		REC"A"＝ 0.1Vp－p P.B"A"＝ 0.2Vp－p	ⓔ		REC／P.B	ⓕ		
ⓖ		CUE／REV ／SLOW ／STILL						

VIDEO CHECKING PROCEDURE

	FLOW OF TROUBLESHOOT →								
	CHECK POINT	Ⓐ	Ⓓ	Ⓔ	Ⓕ	TV			
	IF NO.	↓	↓	↓	↓	↓			
NO PIX	CHANGE	* NOTE1	IC7101 * NOTE2	IC3001 * NOTE3	IC3003	* NOTE4			

* NOTE1 : Check Tuner/Demodu or Video In Terminal.
* NOTE2 : Check signals Ⓑ (REC Video Line (H)).
* NOTE3 : Check signals E – E (H) (Pin 31).
* NOTE4 : Check TV Main Circuit.

	FLOW OF TROUBLESHOOT →							
	CHECK POINT	Ⓓ	Ⓖ	Ⓗ	Ⓘ	Ⓚ	HEAD	
	IF NO.	↓	↓		↓	↓	↓	
NO REC	CHANGE	* NOTE1	IC3001 * NOTE2		IC6001 * NOTE3	HEAD AMP	UPPER CYLINDER * NOTE4	

* NOTE1 : Check Tuner/Demodu or Video In Terminal and IC7101.
* NOTE2 : Check signals ⓒ, E – E (H) (Pin 31).
* NOTE3 : Check Cylinder FG/PG signal at Pin 47 of IC6001.
* NOTE4 : Try head cleaning.

	FLOW OF TROUBLESHOOT →								
	CHECK POINT	Ⓠ	ⓒ	ⓓ					
	IF NO.	↓	↓						
NO COLOR	CHANGE	HEAD AMP	IC3003						

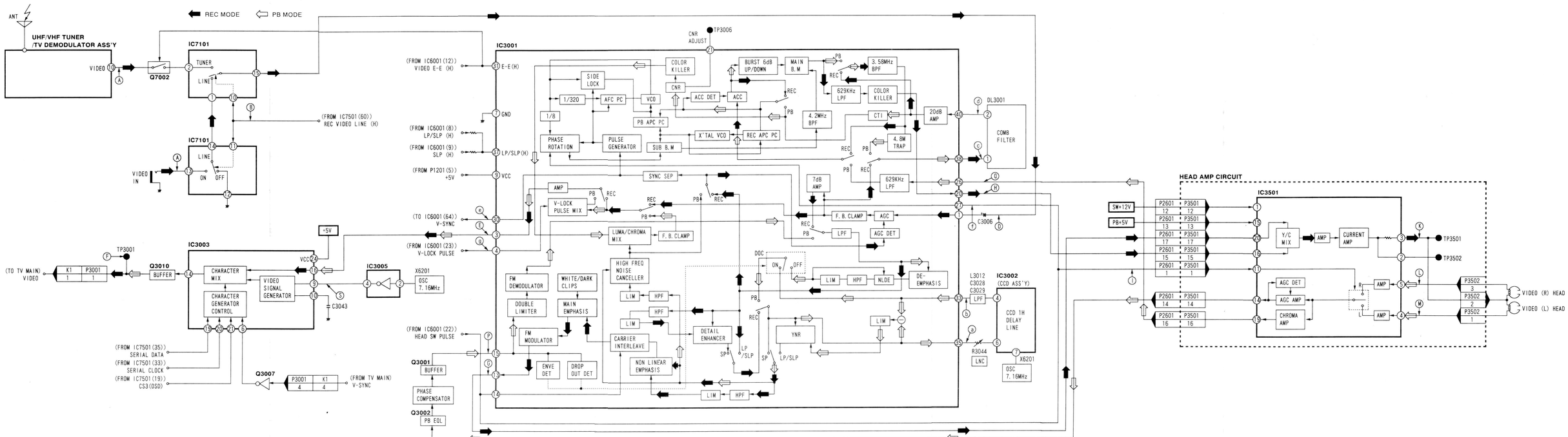
	FLOW OF TROUBLESHOOT →							
	CHECK POINT	Ⓛ	Ⓜ	Ⓘ	——			
	IF NO.		↓	↓	↓			
WIDE NOISE BAND	CHANGE	UPPER CYLINDER * NOTE1		* NOTE2	SEE SERVO SECTION			

* NOTE1 : Try head cleaning.
* NOTE2 : Check Cylinder FG/PG signal at Pin 47 of IC6001.

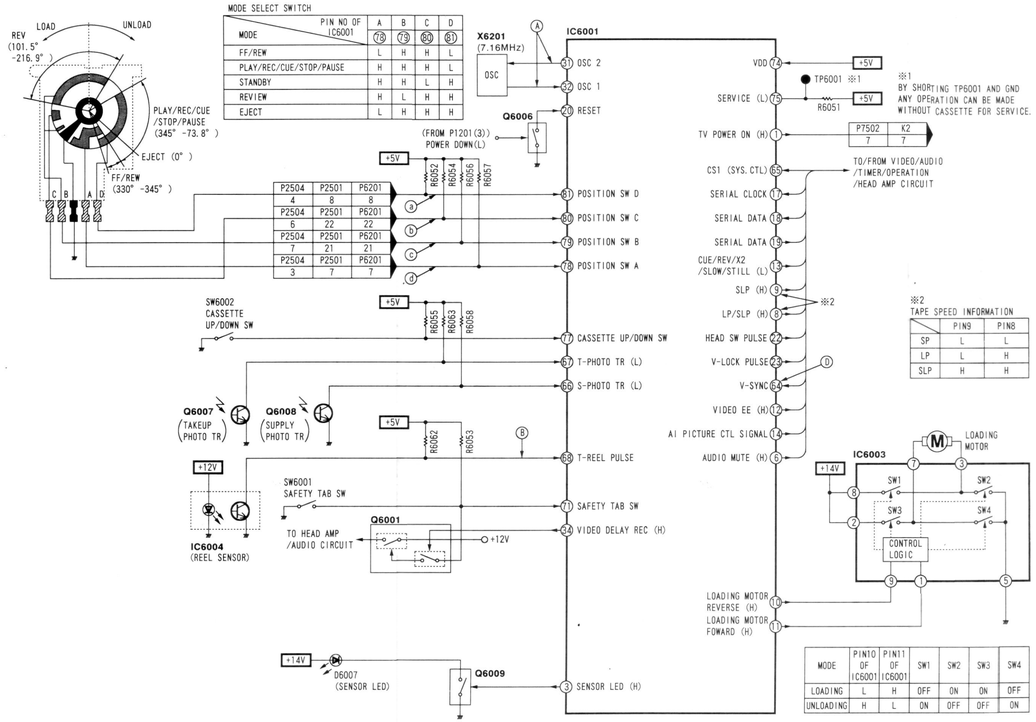
	FLOW OF TROUBLESHOOT →								
	CHECK POINT	Ⓟ	Ⓠ	Ⓔ	Ⓕ	TV			
	IF NO.		↓		↓	↓			
P.B NOISE (SNOW)	CHANGE	IC3001 * NOTE1		* NOTE2	IC3003	* NOTE3			

* NOTE1 : Try head cleaning and check Head Amp Shield Case or signals from Ⓛ, Ⓘ.
* NOTE2 : Check signals from ⓒ.
* NOTE3 : Check TV Main Circuit.

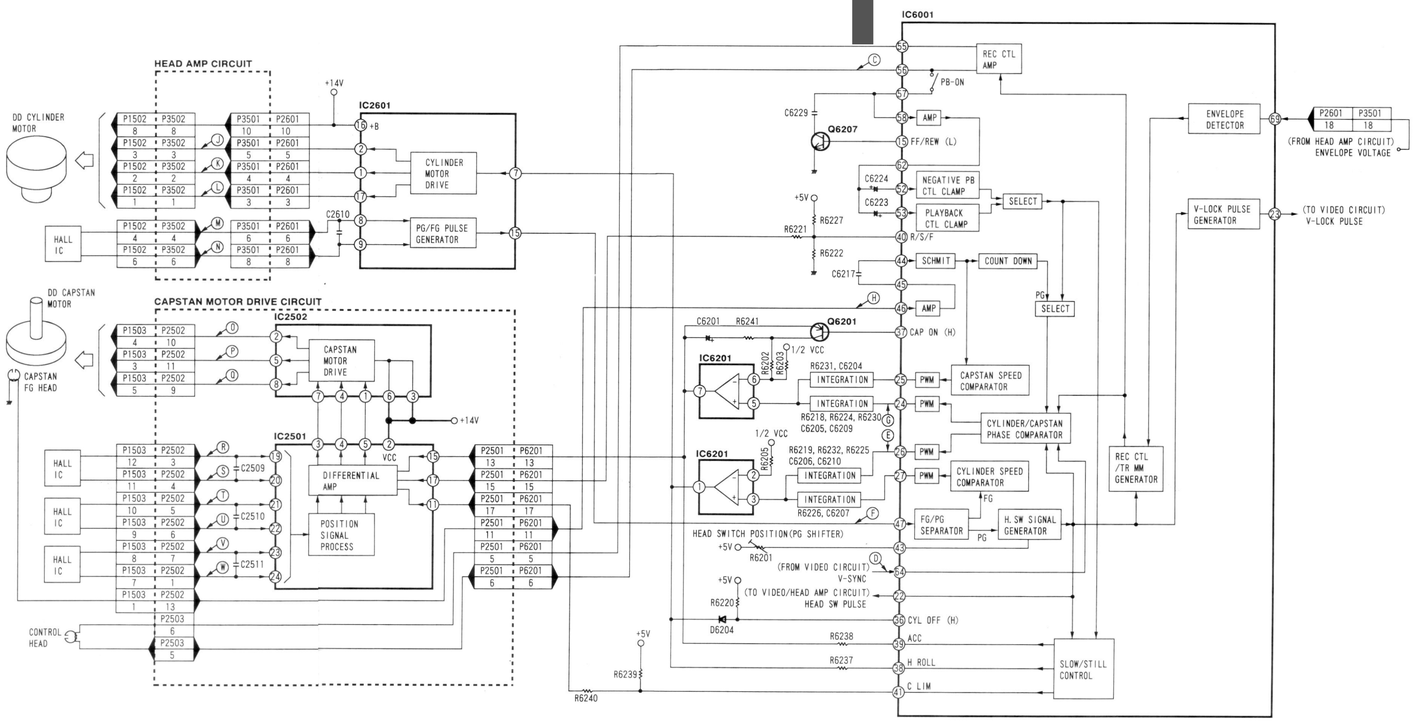
VIDEO BLOCK DIAGRAM



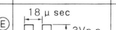
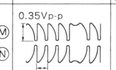
SYSTEM CONTROL BLOCK DIAGRAM



SERVO BLOCK DIAGRAM



WAVEFORM OF SYSTEM CONTROL & SERVO STAGE

NO	WAVEFORM	NOTE	NO	WAVEFORM	NOTE	NO	WAVEFORM	NOTE
Ⓐ		(7.159 MHz)	Ⓑ		REC/P.B	Ⓒ		REC CTL
Ⓓ			Ⓔ			Ⓕ		
Ⓖ			Ⓗ		"F" = SP : 1080 LP : 540 SLP : 360			
Ⓙ Ⓚ Ⓛ			Ⓜ Ⓝ			Ⓞ Ⓟ Ⓠ		
Ⓡ Ⓢ Ⓣ Ⓤ Ⓥ Ⓦ								

SYSTEM CONTROL & SERVO CHECKING PROCEDURE

SYMPTOM	FLOW OF TROUBLESHOOT →						
Dead or Malfunction	CHECK POINT	Pin74 (VDD5V)	Ⓐ	Pin20 NORMAL(Ⓗ)	Pin17 (SCK)	ⓐ ~ ⓓ	* NOTE2
	IF NO.	↓	↓	↓	↓	↓	
	CHANGE	Power	X6201	Q6006	IC6001	* NOTE1	

* NOTE1 : Adjust Gear Phase.
* NOTE2 : Check Power Circuit.

SYMPTOM	FLOW OF TROUBLESHOOT →						
NO PLAY	CHECK POINT	ⓐ ~ ⓓ	Ⓕ	Ⓑ			
	IF NO.	↓	↓	↓			
	CHANGE	* NOTE1	* NOTE2	* NOTE3			

* NOTE1 : Adjust Gear Phase.
* NOTE2 : IC2601 (Cyl Drive) or Cylinder U.
* NOTE3 : IC2502 (Cap Drive) or Reel Sensor.

SYMPTOM	FLOW OF TROUBLESHOOT →						
Distorted Playback Pix (1)	CHECK POINT	Ⓓ	Ⓕ	* NOTE3	* NOTE5		
	IF NO.	↓	↓	↓			
	CHANGE	* NOTE1	* NOTE2	* NOTE4			

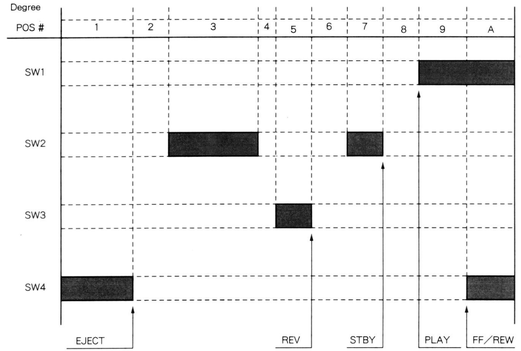
* NOTE1 : Check Video Circuit.
* NOTE2 : IC2601 (Cyl Drive) or Cylinder U.
* NOTE3 : Open pin 7 of IC2601 and apply external 2.5V DC to the pin 7.
* NOTE4 : If the picture is still the same, change IC2601 or Cylinder U.
* NOTE5 : If the picture is improved, change IC6001 or IC6201.

SYMPTOM	FLOW OF TROUBLESHOOT →						
Distorted Playback Pix (2) (Periodic Noise bar)	CHECK POINT	Ⓒ	Ⓗ	* NOTE3	* NOTE5		
	IF NO.	↓	↓	↓			
	CHANGE	* NOTE1	* NOTE2	* NOTE4			

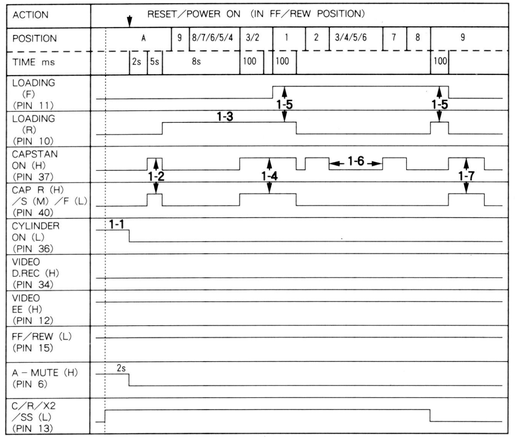
* NOTE1 : Check tape travel and clean A/C head.
* NOTE2 : Check FG Head.
* NOTE3 : Open pin 15 of IC2501 and apply external 2.5V DC to the pin 15.
* NOTE4 : If the picture is still the same, change IC2501,2502 or Capstan Motor.
* NOTE5 : If the picture is improved, change IC6001 or IC6201.

TIMING CHART

BASIC OPERATION WITH MODE SELECT SWITCH



TIMING CHART 1

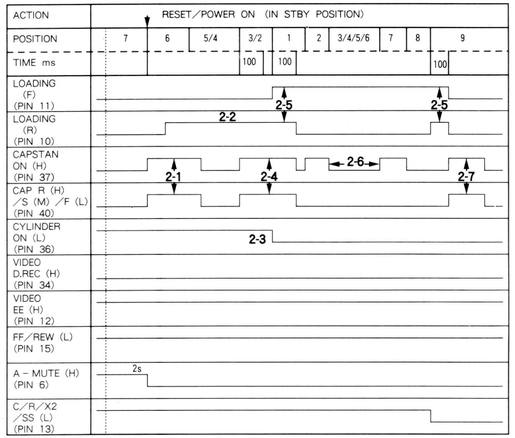


NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

1. PLUG IN AC CORD WHEN THE MECHANISM IS IN THE FF/REW POSITION
   1 - 1. Cylinder rotation to reduce cylinder power loss.
   1 - 2. Take up the tape slack.
   1 - 3. Unloading to the before Eject position (position 2).
   1 - 4. Roll up the tape to the Cassette Reel.
   1 - 5. Apply a brake to the Loading Motor.
   1 - 6. Aim the Play Idler Gear to the takeup side.
   1 - 7. No tension is fed to the tape by rotating the capstan shaft by 30.

TIMING CHART 2

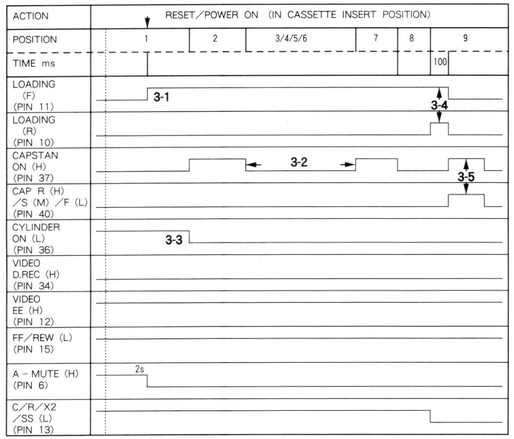


NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

2. PLUG IN AC CORD WHEN THE MECHANISM IS IN THE STBY POSITION
2 - 1. Take up the tape slack.
2 - 2. Unloading to the before Eject position (position 2).
2 - 3. Cylinder rotation to reduce cylinder power loss.
2 - 4. Roll up the tape to the Cassette Reel.
2 - 5. Apply a brake to the Loading Motor.
2 - 6. Aim the Play Idler Gear to the takeup side.
2 - 7. No tension is fed to the tape by rotating the capstan shaft by 30.

TIMING CHART 3



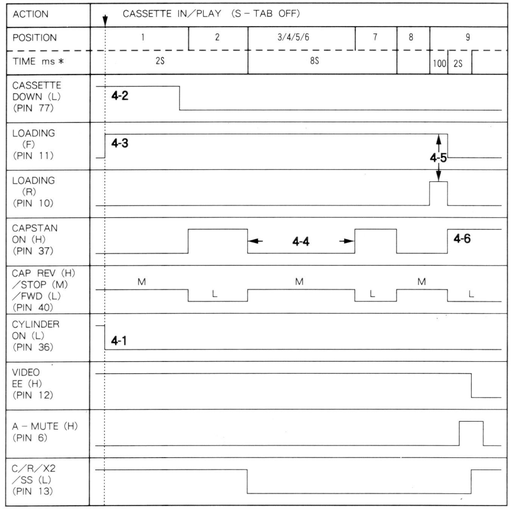
NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

3. PLUG IN AC CORD WHEN THE MECHANISM IS IN THE CASSETTE INSERTION POSITION
3 - 1. Loading to the Play position (position 9).
3 - 2. Aim the Play Idler Gear to the takeup side.
3 - 3. Cylinder Motor Rotation starts.
3 - 4. Apply a brake to the Loading Motor.
3 - 5. No tension is fed to the tape by rotating the capstan shaft by 30.

NOTE : PLUG IN AC CORD WHEN THE MECHANISM IS IN THE EJECT POSITION.

TIMING CHART 4

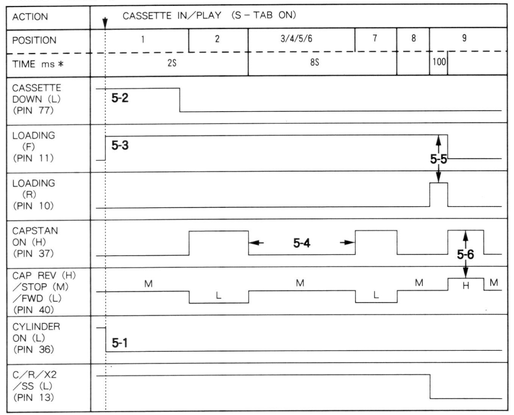


NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

4. CASSETTE IN (WITHOUT SAFETY TAB)
- 4-1. The Cylinder starts rotation for quick play.
- 4-2. The Cassette Down (L) signal goes LOW at position 2.
  (If the Cassette Down (L) signal does not become LOW even at the position 2, the unit ejects the tape.)
- 4-3. The Loading Motor starts rotation in forward direction.
- 4-4. 1) The Play idler returns to center.
  2) Aim the Play Idler to the takeup side.
- 4-5. When the Mode Switch reaches the position 9, the Loading (R) signal goes HIGH to apply a brake to the Loading Motor. Then the Loading Motor stops.
- 4-6. Starts playback.

TIMING CHART 5

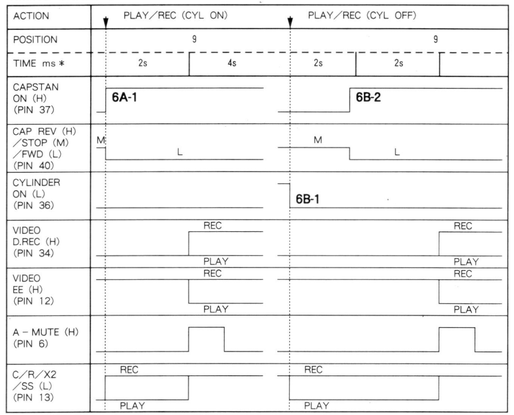


NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

5. CASSETTE IN (WITH SAFETY TAB)
5 - 1 thru 5 - 5 are the same as 4 - 1 thru 4 - 5 of item 4 (without safety tab).
5 - 6. The Capstan Motor rotates a little in reverse direction to reduce the tape tension.

TIMING CHART 6

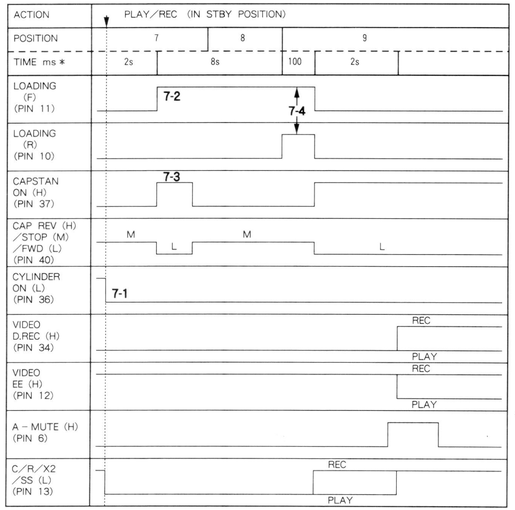


NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

6. PLAY/REC
   6A. CYLINDER ON
      6A – 1. The Capstan Motor starts rotation in forward direction for REC/PLAY.
   6B. CYLINDER OFF
      6B – 1. The Cylinder Motor starts rotation.
      6B – 2. 2 seconds later, Cylinder rotation is stabilized and the Capstan Motor starts rotation in forward direction.

TIMING CHART 7

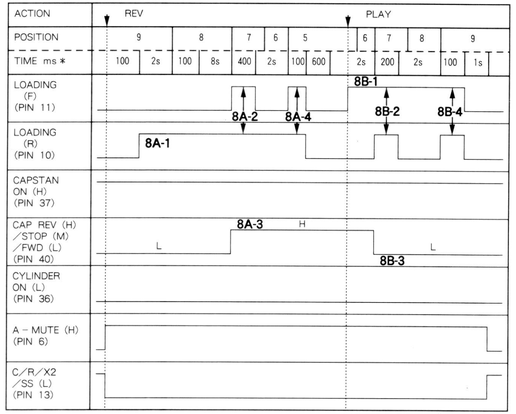


NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

7. PLAY/REC (FROM STANDBY POSITION)
   7 - 1. The Cylinder Motor starts rotation for quick start.
   7 - 2. The Loading Motor starts rotation in forward direction.
   7 - 3. The Capstan Motor rotates in forward direction to aim the Play Idler to takeup side.
   7 - 4. When the Mode Switch reaches the position 9, the Loading (H) signal goes HIGH to apply a brake to the Loading Motor. Then the Loading Motor stops, quickly.

TIMING CHART 8



NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

8. REVIEW

8A. PLAY TO REVIEW

8A - 1. The Loading Motor starts rotation in reverse direction.

8A - 2. Just after the Pressure Roller and the Tension Arm are released, the Loading Motor stops.

8A - 3. During the Loading Motor stop, the Capstan Motor changes direction to reverse.

8A - 4. When the Mode Switch reaches the position 5, the Loading (F) signal goes HIGH to apply a brake to the Loading Motor. The Pressure Roller is applied to the Capstan Shaft.

8B. REVIEW TO PLAY

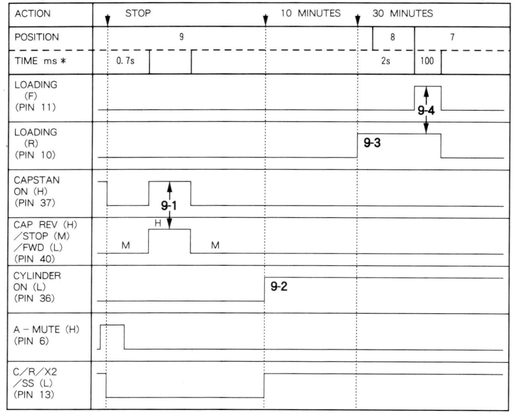
8B - 1. The Loading Motor starts rotation in forward direction.

8B - 2. Apply a brake to the Loading Motor.

8B - 3. During the Loading Motor stop, the Capstan Motor changes direction to forward.

8B - 4. When the Mode Switch reaches the position 9, the Loading Motor stop.

TIMING CHART 9



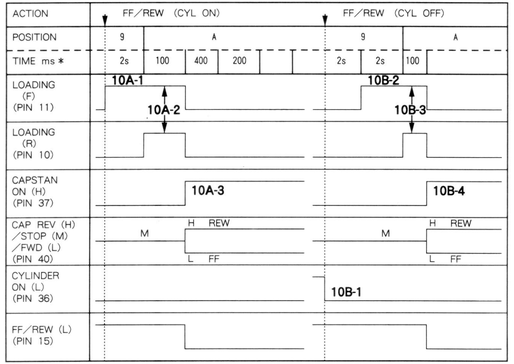
NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

9. PLAY TO STOP/AFTER 10 MINUTES/AFTER 30 MINUTES

9-1. The Capstan Motor rotates a little in reverse direction to reduce the tape tension.
9-2. After 10 minutes, the Cylinder stops.
9-3. After 30 minutes, the Mechanism changes the position to 7 (Standby).
9-4. At this position, the Pressure Roller and the Tension Arm are released to reduce the tape tension.

TIMING CHART 10

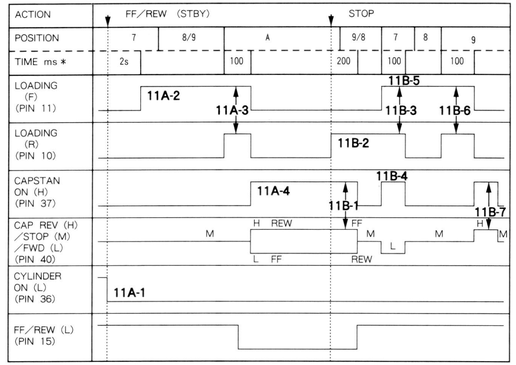


NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

10. STOP TO FF/REW
  10A. CYLINDER ON
    10A – 1. Changes the mechanism position to A (FF/REW) to release the Pressure /10A – 2. Roller and the Tension Arm.
    10A – 3. The Capstan Motor starts rotation for FF/REW.
      During FF/REW, the Cylinder keeps rotation to prevent a tape damage.
  10B. CYLINDER OFF
    10B – 1. The Cylinder Motor starts rotation.
    10B – 2/10B – 3/10B – 4, these are the same as that of 10A – 1 thru 10A – 3.

TIMING CHART 11

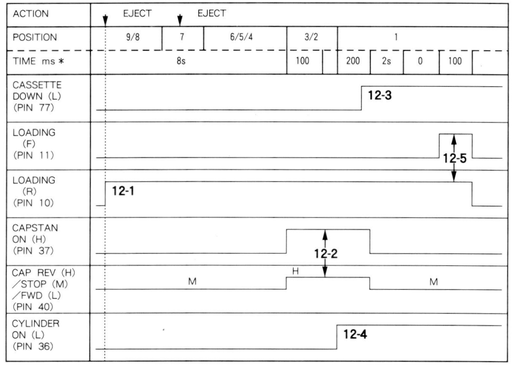


NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) ✱ : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

11. STOP TO FF/REW (FROM STANDBY POSITION)
11A. STOP (STANDBY) TO FF/REW
11A－1. The Cylinder Motor starts rotation.
11A－2. Changes the mechanism position to A (FF/REW) to release the Pressure
/11A－3. Roller and the Tension Arm.
11A－4. The Capstan Motor starts rotation for FF/REW
11B. FF/REW TO STOP
11B－1. Applies a brake to the Capstan Motor for quick stop.
11B－2. Changes the mechanism position to 7 to release the Pressure Roller and
/11B－3. the Tension Arm.
11B－4. Aims the Play Idler to the takeup side.
11B－5. Changes the mechanism position to 9 (PLAY POSITION).
/11B－6.
11B－7. The Capstan Motor rotates a little in reverse direction to reduce the tape tension.

TIMING CHART 12

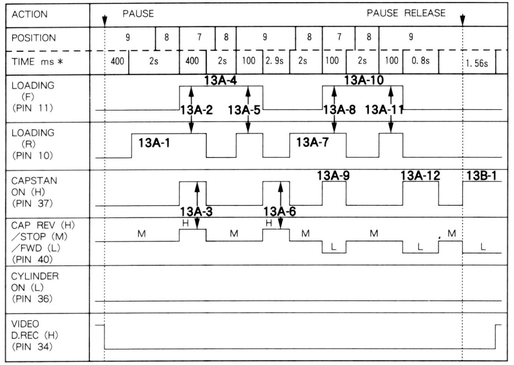


NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) * : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

12. STOP TO EJECT
12 – 1. Unloads the tape to the Eject position (1).
12 – 2. The Capstan Motor rotates in reverse direction to takeup a tape slack.
12 – 3. The Cassette Down (L) signal goes HIGH.
(If the Cassette Down (L) signal does not become HIGH within 2 seconds at position 1, The unit detects it and shuts off the power.)
12 – 4. When the Mode Switch reaches the position 1, the Cylinder stops.
12 – 5. The Loading Motor stops.

TIMING CHART 13



NOTE : 1) PIN NO. WITH BRACKET INDICATES PIN NO. OF IC6001.
2) ∗ : IT SHOWS MAXIMUM TIME.

MODE BY MODE OPERATION

13. REC TO REC PAUSE/REC PAUSE TO REC

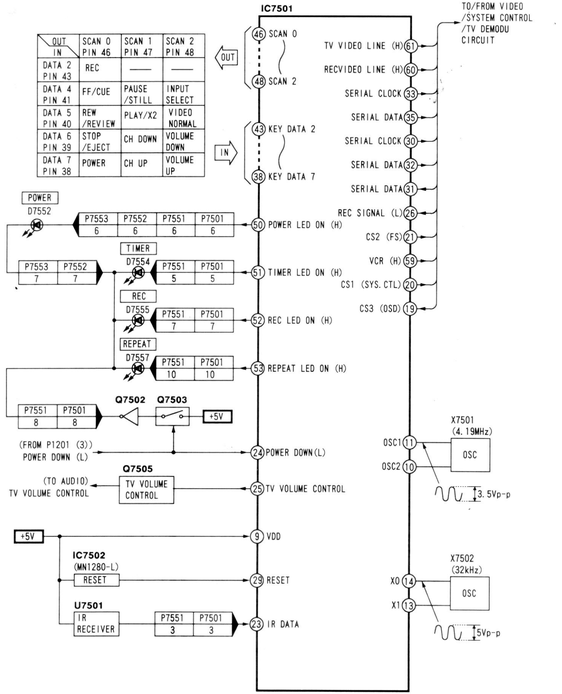
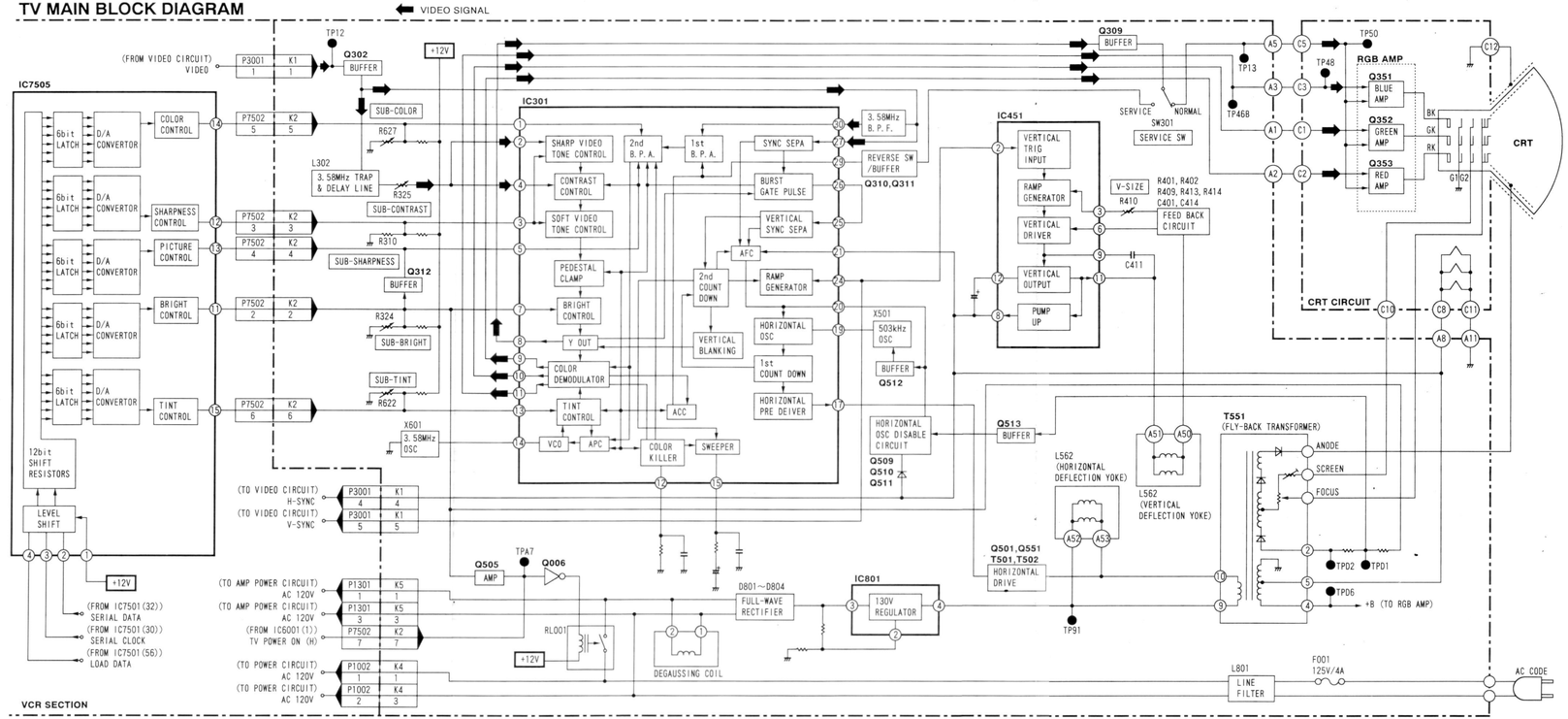
13A. REC TO REC PAUSE

13A – 1. Changes the mechanism position to 7 (STANDBY).
/13A – 2.
13A – 3. Aims the Play Idler to supply side.
13A – 4. Changes the mechanism position to 9 (PLAY POSITION).
/13A – 5.
13A – 6. Short rewind in 2.5 seconds.
13A – 7. Changes the mechanism position to 7 (STANDBY).
/13A – 8.
13A – 9. Aims the Play Idler to the takeup side.
13A – 10. Changes the mechanism position to 9 (PLAY POSITION).
/13A – 11.
13A – 12. Playback the tape in 0.5 seconds for add – on recording.

13B. REC PAUSE TO REC

13B – 1. The Capstan Motor starts rotation in forward direction for playback. (After 1.5 seconds, the video recording will be activated with the Video Delay Rec (H) signal.)

TIMER/OPERATION BLOCK DIAGRAM



TV MAIN BLOCK DIAGRAM